

61. *On a New Genus of Simple Ascidians Intermediate  
between "Molgula" and "Rhizomolgula"*  
(*"Hemirhizomolgula" nov. gen.*)

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The genus *Rhizomolgula*, established by W.E. RITTER<sup>1)</sup> in 1901, is unique among the Molgulidae in having a long slender root-like process and a pair of peculiar glands at the posterior end of the body. In my collection there are several specimens of a small Molgulid which agrees quite well with this genus so far as the internal anatomy is concerned, but is entirely devoid of the characteristic appendage which suggested the generic name of this interesting Ascidian. What is most striking is that our animal, in spite of its rootless appearance, possesses internally a rudiment of such an appendage in the form of a short tail-like process projecting from the muscular coat, but which remains hidden in the thickness of the test. The curious glands, whose function according to HARTMEYER<sup>2)</sup> is to produce an adhesive material which enters the root, are also present. Obviously the new species can not be included in any of the existing genera and, in consequence, a new genus had to be formed for it.

*Hemirhizomolgula utidai* n.g. n.sp.

*External Appearance.* The body is globular or ovate in shape, slightly compressed laterally. The branchial and atrial apertures are both at the anterior end; they are not distant, but slightly projecting; the branchial is distinctly six-lobed, the atrial four-lobed. The surface is even, and is entirely covered by a thin layer of closely adhering sand grains, except at a point opposite the apertures, where the test is greatly

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1) RITTER, W.E. Papers from the Harriman Alaska Expedition. XXIII. The Ascidians. Proc. Washington Acad. Sc., Vol. III. 1901.

2) HARTMEYER, R. Die Ascidien der Arktis. Fauna Arctica, Bd. III. 1903.

thickened so as to form a slight protuberance. The colour is uniform yellowish gray (due to the sand).

Size of the largest specimen examined, 16 mm. long, 13 mm. in dorso-ventral diameter, and about 10 mm. wide from side to side when distended.

*The Test* is thin and quite transparent, except at the posterior end of the body, where it is thick and opaque white. The sand grains adhere to the test substance itself and not to processes growing from it.

*The Mantle* is thin and not very muscular, the bundles being rather distant. Transverse bundles are particularly developed along the dorsal and ventral edges, while the longitudinal bundles are more conspicuous on the sides and over the peduncular glands near the posterior end of the body. As stated at the beginning of this paper, there is a short, pointed, tail-like appendage, which projects from the mantle between these glands and fits into a corresponding pit on the inner surface of the test.

*The Tentacles* are large and much branched; they are about sixteen in number, with some additional very small intermediate ones.

*The Dorsal Tubercle* is low and simple; the orifice is horse-shoe shaped, with the open interval directed forward and the horns more or less irregularly incurved. The neural gland, together with the nervous ganglion, forms a conspicuous round opaque white mass immediately beneath the tubercle.

*The Branchial Sac* has six well developed, nearly equal folds on each side; there are about six internal longitudinal vessels on each fold and none between the folds. The walls of the sac are occupied by internally projecting infundibula, very tall and numerous, and distributed without apparent regularity, except the largest ones which form a longitudinal row within each fold. The stigmata are very long and form regular spirals winding uninterruptedly from the base to the summit of the infundibula. The endostyle is narrow, and for the greater part straight.

*The Dorsal Lamina* is a plain broad membrane; it is thin, and there are no ribs nor marginal teeth.

*The Alimentary Canal* is large and lies on the left side. The oesophagus runs directly posteriorly to open into the stomach lying on the left dorsal edge of the posterior part of the branchial sac. The stomach is distinctly marked off from the oesophagus, but narrows gradually into the intestine; it is elongate in shape, and its wall is thrown into ten or twelve distinct, closely approximated, somewhat tortuous, longitudinal folds. The intestine, which is of nearly equal diameter throughout,

after reaching the ventral edge, runs anteriorly for a short distance, then curving dorsally passes to the dorsal edge of the branchial sac, along which it is continued anteriorly towards the atrial aperture. The margin of the anus is smooth.

*The Gonads* are present on the left side only, and both the ovary and testis are placed within the intestinal loop, which they completely fill. The ovary occupies the middle, while the testis occurs in the form of a great number of nearly spherical masses surrounding the ovary and in close contact with the intestine. The oviduct is very short, running along the dorsal side of the rectum.

*The Renal Organ* is comparatively large and scarcely curved; it is placed beneath the stomach, near the ventral edge of the left side of the mantle.

*The Peduncular Glands* are present, one on each side of the tail-like process of the mantle referred to above. They are disk-shaped with opaque white borders, and are rather conspicuous, although, in view of the root less condition of our animal, they must be considered as rudimentary organs.

As will be seen from the above description, the new genus occupies a position intermediate between *Molgula*, which it closely resembles in external appearance, and *Rhizomolgula*, with which it shares the possession of the characteristic peduncular glands and the unilateral development of the reproductive organs. In the form and structure of the infundibula, it is more closely allied to *Bostrichobranthus*, which, however, has no folds in the branchial sac.

Nine specimens of this interesting Ascidian were collected by Mr. T. Utida at Tyaivo, on the eastern coast of North Sakhalin, on Aug. 19, 1923.

It may be added that the genus *Rhizomolgula* is also represented in the Japanese Ascidian fauna by a new species, which I propose to name *Rh. japonica*. It is easily distinguishable from the previously known species of the genus in having a pair of gonads, one on each side of the body.

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